

THAT WHICH IS CLAIMED IS:

1. A modular external antenna assembly adapted to replace an internal antenna in a wireless terminal device, comprising:

5 a modular antenna housing; and

an external antenna,

the modular housing having a shape that is adapted to attach to a predetermined portion of a wireless terminal device that is configured to operate with an internal antenna.

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2. A modular external antenna assembly according to Claim 1, further comprising a signal feed positioned in a substantially central top portion of the modular antenna housing, wherein, in position in the wireless terminal device, the modular external antenna assembly signal feed engages a signal feed of the wireless terminal device that is also configured to electrically connect the internal antenna to the wireless terminal device.

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3. A modular external assembly according to Claim 2, wherein the signal feed is positioned on an inwardly and/or downwardly protruding finger that is sized and configured to automatically connect the modular external antenna to the wireless terminal device signal feed when the modular housing is attached to the wireless terminal device.

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4. A modular external antenna assembly according to Claim 1, wherein the modular antenna housing is configured to define a rear panel of the wireless terminal device.

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5. A modular external antenna assembly according to Claim 1, wherein the modular antenna housing is configured to define a releaseably attachable panel member of a mobile telephone.

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6. A modular external antenna assembly according to Claim 5, wherein the modular antenna housing defines an upper rear panel of the mobile telephone.

7. A modular external antenna assembly according to Claim 1, wherein the external antenna is a stub antenna that is configured to replace an internal planar inverted F-antenna.

5 8. A modular external antenna assembly according to Claim 1, wherein the external antenna is configured as a fin antenna that is configured to replace an internal planar inverted F-antenna.

9. A modular external antenna assembly according to Claim 1, wherein  
10 the external antenna is configured as a retractable antenna that is configured to replace an internal planar inverted F-antenna.

10. A modular external assembly according to Claim 1, in combination with the wireless terminal, wherein the external antenna is configured to mount to the  
15 rear of the wireless terminal device so as to reside over a ground plane therein, the ground plane in the wireless terminal being configured to operatively engage the internal antenna when the internal antenna is in position in the wireless terminal device.

20 11. An aftermarket internal antenna replacement kit for a wireless terminal device, comprising:  
a modular housing;  
an external antenna held in the modular housing, the modular housing configured and sized to mount to a portion of a predetermined wireless terminal  
25 device that is configured to operate with an internal planar inverted F-antenna.

12. A kit according to Claim 11, wherein the modular housing is configured to define a rear panel of a mobile communications device.

30 13. A kit according to Claim 12, wherein the mobile communications device is a mobile telephone.

14. A kit according to Claim 13, wherein the wireless device has a first rear cover that holds an internal planar inverted F-antenna thereon and is releaseably

attachable to the wireless terminal device, and wherein the modular antenna housing defines a second rear cover that is configured to interchangeably and releaseably attach to the wireless device so as to replace the first rear cover.

5           15.     A kit according to Claim 12, wherein the modular antenna housing comprises signal and ground connectors that reside substantially centrally in a top portion of the modular housing and automatically engage a signal feed in the wireless terminal device when the modular antenna housing is in position on the rear of the wireless terminal device.

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16.     A wireless terminal product, comprising:

(a) a housing having opposing front and back portions, the back portion configured with a cavity and frame that is sized and configured to releaseably accept an upper rear panel to enclose the cavity, the housing configured to enclose a  
15 transceiver that transmits and receives wireless communications signals;

(b) a ground plane disposed within the housing;

(c) a planar inverted-F internal antenna configured and sized to be positioned within the housing and electrically connected with the transceiver, wherein the internal antenna comprises a planar dielectric substrate and a planar conductive  
20 element disposed on the planar dielectric substrate, and wherein the internal antenna is integral with a first upper rear panel;

(d) an external antenna configured and sized to be positioned within the housing held on a second, releaseably attachable, upper rear panel member, wherein the first and second upper rear panels with the internal and external antenna,  
25 respectively, are configured and sized to be interchangeably attachable to the housing; and

(e) a signal feed configured to electrically connect to either of the internal and external antennas via a connector positioned in the cavity of the housing, responsive to whether the first or second upper rear panel is in position on the wireless terminal.

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17.     A wireless terminal product according to Claim 16, wherein the wireless terminal product is a mobile communications device; and wherein the device further comprise (f) a ground feed connector disposed in the housing cavity proximate the signal feed connector, electrically connected to one of the internal and external

antennas depending on which of the first and second upper rear panels are in position on the wireless terminal.

18. A wireless terminal product according to Claim 16, wherein the  
5 wireless terminal product comprises a wireless mobile telephone.

19. A method for retrofitting a wireless device configured to operate with an internal antenna to allow replacement of the internal antenna with an external antenna:

10 providing a wireless terminal with a housing and an internal antenna;  
providing an external antenna assembly that has a predetermined shape and size that is configured to mount to the wireless terminal; and  
replacing the internal antenna so that the wireless terminal operates with the external antenna instead of the internal antenna.

15 20. A method according to Claim 19, wherein the internal antenna is held on a first rear panel that is configured to releaseably engage the wireless terminal housing and the external antenna is mounted to a second rear panel that is configured to releaseably engage the wireless terminal housing with the first and second rear  
20 panels being interchangeably mountable to the wireless terminal housing, and wherein the replacing step is carried out by removing the first panel and then attaching the second panel.

21. A method according to Claim 20, wherein the internal antenna is a  
25 planar inverted F-antenna.

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